Green Business Best Management Practices

Please use the following sustainability practices as a guide when assessing your business and creating an environmental management plan. If you are accessing this information on your computer, you can click on the hyperlinks below to skip to each category:

Planning, Design and Development

Planners, designers and developers should aim to minimize negative impacts to the surrounding environment. The planning stage should provide a foundation for the principles of sustainability to be incorporated into all other stages of development. There are two "green building" certification programs that builders can use: the US Green Building Council's "Leadership in Energy and Environmental Design" (LEED) and the Florida Green Building Coalition's Green Home and Green Building standards. These certification standards require third party independent verification to ensure that the builder is achieving the green building standards.

Planning:

- Acquire a “green building” certification through either the US Green Building Council's "Leadership in Energy and Environmental Design" (LEED) http://www.usgbc.org/DisplayPage.aspx?CategoryID=19 or the Florida Green Building Coalition's Green Home and Green Building standards http://floridagreenbuilding.org/standard/Default.htm
- Educate management, staff, and contracted employees on sustainability principles.

Site Selection:

- Develop an understanding of the area’s resources, define environmental limits, and avoid environmentally sensitive sites.
- Include considerations of future land use for adjacent lands to ensure long-term feasibility of the site.

Facility Design:

- Implement the use of recyclable and local building materials.
- Create an infrastructure design that reflects local cultural design motifs.
- Utilize technologies that promote environmental conservation.
- Incorporate natural and passive heating and cooling techniques.

Scale of Operation:

- Maintain a scale respecting the carrying capacity of the local environment.

Site Development:

- Utilize local labor in the production of the facility.
- Implement construction techniques that are least disruptive to the site; for example, erosion control methods. Refer to the Construction Best Management Practices available upon request from the Environmental Resources Management Division- environment@miamibeachfl.gov or 305-673-7080.

Environmental Response:

- Complete an environmental impact assessment as a result of development.
- Avoid forms of development that result in irreversible damage to the environment.
- Monitor the response an area has as development occurs.

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Energy Conservation

Your business may require the use of energy in areas of services, lighting, heating, cooling, appliance usage, transportation, etc. The methods chosen to accomplish the goal of producing power, and the ways in which the power is consumed can have a significant effect on how much energy is used, and therefore how high your energy bills are. The following sustainability practices provide methods for a business to meet its objectives.

Energy Conservation Technologies:

- Install energy efficient technologies with the Energy Star® label. For example, computers, copiers, fax machines, commercial and industrial transformers, and water coolers. http://www.energystar.gov/.
- Consider installing an Energy Management System. An Energy Management System (EMS) is a program that allows operators to monitor the building's energy load. The most common use is monitoring the HVAC. An EMS usually includes a computer, an energy management software program, sensors and controls, and in larger systems, a communications network. An energy management system can save 10% to 40% on electric bills.

Building Renovations:

- Have FPL conduct a commercial energy assessment.
- Replace damaged weather-stripping on doors and windows with caulk. Damaged weather-stripping allows inside air to leak and outside air to enter, which requires more energy to keep building at desired temperature.
- Install energy efficient windows. Energy efficient windows used in either new or retrofit situations can cut annual HVAC energy costs by up to 15 % if properly installed.
- Add window film to windows to reduce energy loss and solar heat emissions through windows. Consider double paned windows. According to Florida Power & Light, energy efficient windows can cut annual energy costs by up to 15%. #13 Films reduce cooling loads, improve shatter resistance, block up to 99 % of ultraviolet radiation, and reduce glare.
- Evaluate insulation in ceilings and add insulation as needed. Insulation can be one of the most important factors in achieving energy efficiency in a building. It works primarily to slow the flow of heat through a building envelope.
- Consider installing white or reflective roofing. White or reflective roofing helps reflect heat and keep buildings cool.
- Utilize light colored walls and ceilings. Light colored walls and ceilings may increase light levels by 15% to 50%.
- Use renewable energy resources, such as solar energy, whenever possible.

Water heating systems:

- Replace inefficient water heating systems with high efficiency equipment. It may be more expensive than average efficiency units, but the higher costs can be recovered through increased energy savings.
- Lower water heater temperatures. The Florida Energy Extension Service recommends reducing domestic hot water temperature to 110-120 degrees F at the water heater.

- Insulate hot water heater tanks. Except for reducing the amount of hot water used, tank insulation may be the best energy conservation opportunity. Insulation kits cost as little as $10 to $20 and will pay for themselves in energy savings in 12 months or less.
- Insulate hot water pipes. In a system with about 200 feet of piping, good insulation will save approximately $15 to $25 per year.
- Repair leaking faucets. A hot water faucet dripping at a rate of 1 gallon an hour consumes $30 to $120 in energy.

Energy Efficient Lighting:

- Replace standard incandescent bulbs with compact fluorescents or other high energy efficient lighting.
- Use the lowest wattage lamp necessary.
- Use natural lighting whenever possible, or install dimmer control lighting.
- Use occupancy sensors to detect the presence or absence of people and turn lights on and off accordingly.
- Replace incandescent lamps in exit signs with light-emitting diode exit signs.
- Eliminate or reduce external lighting not needed for safety or security.

Education and Training:

- Provide training on energy conservation behavior for staff and management. Turn off room lights, televisions and radios in unoccupied rooms. For example, create reminder stickers near light switches to remind staff to turn off lights when they leave the room.
- Keep doors and windows closed when not in use. Open doors and windows allow heated and cooled air to escape and outside air to enter, which requires more energy to keep building at desired temperature.
- Clean lighting fixtures. Bulbs will produce more light after cleaning.
- Perform regular maintenance on heating, ventilation and air conditioning (HVAC) system. Check and clean at least two times a year.
- Clean condenser and evaporator coils. A very thin layer of dust reduces efficiency. Make this a part of your preventative maintenance schedule and clean every six months.
- Provide information for customers and guests on energy conservation behavior, when applicable.

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Water Conservation

Businesses may consume water through the use of showers, sinks, toilets, and dishwashers, and through landscaping practices. A green business should aim to reduce their water consumption through effective water conservation practices to improve water quality and quantity, while reducing their utility bills. The following sustainability practices offer a way for a business to reduce its water consumption.

Water Conservation from Landscaping: (Click here to go to Landscape Management)

Water Efficient Faucets and Showerheads:

- Recycle used water from showers, sinks, dishwashers, and laundry facilities through gray water technologies.
- Install shutoff valves in the faucets, which allow for water to be turned on and off at the same temperature.
- Install aerators to reduce water usage. First, check the amount of water flowing from each faucet. Open the faucet to full force and fill a container for 10 seconds. Multiply the amount of water in the container by 6 to get the amount of water per minute flow. In the bathroom a 1.5 to 2 gpm aerator will provide enough water for shaving, hand washing and other personal hygiene tasks.
- Install low-flow showerheads and faucets.
- Maintain optimal system pressure. Test system pressure to make sure it is between 20 and 80 psi (pounds/square inch). Water efficient faucets and showerheads will not operate efficiently if the pressure is not correct.
- Check for leaky faucets. A leaky faucet can waste 2,700 gallons of water per year. Include a visual inspection monthly as part of a preventative maintenance plan. Replacing a worn washer or "O" ring usually solves the problem.

Water Efficient Toilets:

- Ensure the installation of low-flow toilets that use less than 1.6 gallons per flush, or water efficient toilets that use gray water for flushing, composting toilets, waterless urinals.
- Check for leaks in the toilets. To check for leaks, remove the lid from the toilet tank and remove any colored cleaning agents, flush to clear the water in the bowl, then drop one leak-detecting dye table (or five drops of food coloring) into the tank and wait 15 minutes. If colored water appears in the toilet bowl without additional flushing, there is a leak. Even a small leak can cause 40 or more extra gallons of water to go down the drain. That amounts to 1,000 gallons of water a month.
- Replace sticking toilet handles that cause “running toilets”. These can waste hundreds of gallons of water per hour.
- Use a displacement bag in toilets. A displacement bag can save about one gallon per flush. Displacement bags are available from most hardware, plumbing and home stores.
- Install variable-buoyancy flappers. Variable-buoyancy flappers and flap actuators that ride on the overflow tube are great for older toilets.

Education and Training:

- Provide training on water conservation behavior for staff and management.
- Provide information for customers and guests on water conservation behavior.

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Waste Management

Sustainable waste management practices are based on the consideration of the life cycle of a product, from its creation to its ability to be assimilated into the environment at the end of its use. A green business should identify all sources of waste, from site development to management, and choose the best methods for minimizing and disposing waste. The following sustainability practices describe a sustainable waste management plan that considers the full life cycle of consumption patterns of a business.

Recycling, Reuse, and Reduce:

- Items that can be recycled:

Aluminum cans	Landscape waste
Antifreeze	Magazines
Appliances	Motor oil
Batteries	Newspapers
Building materials	Office supplies
Cardboard	Paint
Carpet	Plastic bottles
Cell phones	Plastic buckets
Cooking grease	Radios
Computers	Scrap metal
Fluorescent bulbs	Steel containers
Food waste	Telephone books
Freon	Televisions
Furniture	Wood
Glass jars	

- Implement office recycling programs.
    - *Office Paper*: Reuse envelopes for internal routing or use inter-office envelopes. Reuse paper that is clean on one side for messages, scratch paper, or draft reports. Initiate a paperless filing system and scan archived files to your computer. Eliminate unnecessary copies. Proof documents on computer screen before printing. Use internal email system and voice mail to curtail paper use. Print reasonable quantities of material needed and reformat reports, especially draft copies, so that more words will fit on a page by reducing fonts and margins.
    - *Fax Machine*: Use self-adhesive notes or a fax stamp on first page of fax instead of a cover sheet.
    - *Printer:* Choose remanufactured toner cartridges and participate in tonor cartridges recycling programs. Check with your office supply store since most stores now take back ink and toner cartridges.
    - *Copy Machine:* Double-side (duplex) photocopies or set copier for only double-sided (duplex) copy.
    - *Newspapers:* Contact SP Newsprint Co. to initiate a newspaper recycling program. http://www.spnewsprinteast.com/ Newspapers may also be donated to pet stores, animal shelters, fish markets, mail and moving

companies, detail shops for window cleaning, and retail stores for packing material.

- *Magazines:* Cancel unwanted, duplicate subscriptions and share journals, magazines, newspapers, phonebooks, rather than receiving multiple copies. Reduce the amount of junk mail you receive, by writing to: Mail Preference Service - Direct Marketing Association, P.O. Box 3861, New York NY 10163-3861. Donate unwanted books and magazines to libraries, schools, nursing homes, abuse shelters, and child care centers.
- *Marketing Materials:* Keep mailing lists current and print reasonable quantities of marketing material. Use a listserv and send email marketing announcements using links to a web page instead of direct mail campaigns. Print on both sides of paper when possible and use soy-based and other nontoxic inks.

▪ Develop a waste reduction plan for beverage containers and drinking receptacles: Administrative personnel and staff are encouraged to use reusable mugs and containers instead of disposables containers, and to recycle aluminum cans, plastic and glass bottles.

▪ Compost vegetable and organic kitchen wastes. Composting is a process, which begins whenever you place moist organic materials together. The organics naturally begin to decompose into smaller materials and eventually you have compost. Composting can reduce your solid waste substantially and be utilized in your landscaping program.

▪ Compost landscape and agricultural wastes, or determine the landscape waste disposal method currently implemented. If you lack the space or decide composting is not for you, then you should still ensure that your landscape debris is handled in a responsible manner. Find out what your landscaper does with his cuttings and if he is using composted products. Most landfills mulch landscape waste and do not add them to the landfill. These materials can then be used for your landscape.

▪ Install composting toilets.

▪ Promote efficient use of material goods to avoid unnecessary waste.

▪ Minimize the use of hazardous materials whenever possible.

Waste Disposal:

▪ Ensure the correct disposal of hazardous materials.

Sewage Disposal:

▪ If possible, install on-site biological treatment methods of sewage wastes; i.e. wetlands.

Sustainable Purchasing Policies:

▪ Purchase goods and services from environmentally responsible local companies whenever possible.

▪ Purchase paper products that use post-consumer recycled content: letterhead, stationery tissues, toilet paper, paper towels, writing and computer paper, office supplies, playground equipment, picnic/park benches.

▪ Buy products that have recycled packaging - close the loop. Purchasing agents should scrutinize contracts and purchases to find the most environmentally sensitive or alternative products that minimize packaging or waste.

- Implement purchasing practices that evaluate the life cycle of the product, avoiding products such as Styrofoam and disposable items. Use the concept of life cycle costing. Life cycle costing is looking at the total costs associated with a product. Remember you pay for products twice, once when you purchase them and again when you dispose of them. Consider life cycle costing when making purchasing decisions for: disposable napkins, cups, and serving ware; paper towels, individually packaged condiments or amenity items; batteries, and laser toner cartridges; or, anything leftover once an item is used.

Education and Training:

- Educate customers and guests to prevent bringing disposable goods that contribute to the solid waste burden in the region, when applicable.
- Educate and train staff and management in waste reduction, recycling, reuse and reducing behavior.
- Educate customers and guests in waste reduction, recycling, reuse, and reducing behavior, when applicable.

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Landscape Management

The following sustainability practices can provide guidance to businesses for incorporating sustainable landscape methods to reduce the amount of pollutants entering water resources, and to reduce water usage.

Sustainable Landscaping Techniques:

- Ensure the use of native non-invasive plant species.
- Irrigate gardens and landscapes with water efficient technologies and/or stored rain water.
- Recover rain water for irrigation purposes.
- Avoid over watering, which reduces water supply and can result in excess water run-off carrying fertilizers and pollutants into bays, lakes and rivers. It can also result in disease such as fungus and in the excessive growth of weeds and pests. Less frequent watering encourages deeper root development and healthier turf. Using chemicals to combat the results of over watering contributes to stormwater runoff and lake and well pollution.
- Create an efficient landscape design. Careful planning and site evaluation are the first steps in applying this concept. Florida is a diverse state that includes multiple climatic zones. Soil types, temperature ranges and rainfall patterns differ dramatically from region to region. Different conditions often exist in the same property.
- Maximize mulch. Mulch keeps moisture in the soil, moderates soil temperature and reduces erosion and weeds. Keep a 2-to-3-inch layer of organic mulch over the roots of trees and shrubs and in plant beds. Create self-mulching areas under trees so leaves can stay where they fall. Use by-products or alternative mulches such as pine bark, eucalyptus and melaleuca, or use recycled mulches when available from your community.
- Fertilize appropriately. Many trees and landscape plants demand little or no fertilizer once they are established and mature. When over-applied, fertilizers aggravate insect and disease problems and force excessive growth, which must be mowed or pruned. Excess fertilizers can run off yards into waterways or leach into the aquifer, polluting drinking water. Fertilize in moderation and only during the growing season. Use fertilizers that contain slow-release, water insoluble forms of nitrogen. Better yet, use organic compost.
- Provide adequate food, water and shelter for wildlife. With more than 1,200 kinds of animals, Florida ranks third in the nation in wildlife diversity.
- Utilize non-toxic pest control.
- Recycle yard waste. Grass clippings, leaves and yard trimmings are recycled rather than thrown away. By recycling yard debris, we gain free mulch and return valuable nutrients to the soil.
- Reduce stormwater runoff. Keeping rain and sprinkler water on our yards, and out of storm drains, reduces pollution of our bays, rivers and lakes. Ways to reduce runoff include directing downspouts onto lawns or landscaped beds, using rain barrels to collect rain water for irrigation and using pervious materials such as gravel or mulch for driveways and paths.
- Protect the waterfront. Bays and waterways make a special contribution to our quality of life, but these natural treasures can also be very fragile. Remove invasive exotic plants and replace with appropriate natives or other non-invasive exotics. Create a 10-foot-to-20-foot "buffer zone" to the shoreline where no chemicals are applied.

- Replace mowed landscaping with ground cover. Plan the landscape with minimal use of grass. Replace grass with ground cover that requires less maintenance and less water. Try to eliminate small areas of grass, such as parking islands and areas between sidewalks and roadways. These are hard to maintain, require a lot of watering and may be replaced with mulch without losing any of the decorative appeal.
- Use the most efficient irrigations methods. Use trickle, drip or soaker hose irrigation systems where possible, which use less water than sprinklers. These methods are particularly effective with areas that require more water such as trees or gardens. When sprinklers are used, select one that releases water slowly and close to the ground in contrast to one that releases a mist which tends to evaporate more easily. Place sprinklers at the top of sloped areas so that the water that does run off ends up watering the entire slope. Irrigation heads should be aligned with the areas that they are intended to water. For example:

1. **Use the best choices for watering.**
   Sprinklers for Lawns
   Bubblers for Trees
   Drip Irrigation for Gardens and Shrubs
   Soaker Hoses for Flower Beds and Ground Covers
2. **Don't forget to turn drip or soaker hoses off.**
   A timer will help eliminate this frequently occurring problem. Irrigation systems also can be metered and set to deliver a specified amount of water. Any new irrigation system is required by law (Chapter 373.62, Florida Statutes) to have a rain shut-off device or sensor that will override the system if sufficient amounts of rain have fallen.
3. **Check irrigation systems for leaks.**
   If water drips or leaks from a faucet after being turned off, it could mean that the washer is worn out and needs replacing or the faucet may be broken. The washer can be replaced by the maintenance staff. Use washers between faucets or spigots and water hoses to reduce the loss of water between connections. Also check your hoses for punctures. Repair punctures with duct or electrician's tape or by splicing (connectors can be found at hardware or home supply stores). When using a hand hose to water new plantings, use a nozzle to control the amount of water used.
4. **Get the most "bang for the buck" when watering.**
   The best time to water is during the early morning hours when temperatures and wind speeds are at their lowest. Water evaporates quickly in the heat of the day. When it is windy, water may not reach targeted areas or may fall unevenly onto paved areas. If you cannot water in the early morning hours, the next best time to water is in the early evening.
5. **Check local regulation for watering times.**
   Become familiar with the watering restrictions in your area. Standard restrictions include no irrigation between 10 a.m. and 4 p.m. There may be additional restrictions in your area, especially during drought conditions. Check with your local water management district and local utility:
   South Florida Water Management District
   http://www.sfwmd.gov/
6. **Check soil before watering.**
   Before watering, check the soil below the surface. Just because the surface is dry doesn't mean that the roots need water. There may be moisture below the surface. There are tools (such as soil probes or soil sampling tubes) that can be used to obtain soil samples to check for moisture.

7. **Water the lawn only when needed.**
   Signs that grass needs watering are: edges of the blades will begin to roll, fold or look wilted; grass will not spring back when you step on it; or the color changes from bright green to dull gray-green or blue.
8. **Water thoroughly, slowly and less often.**
   Lawns should be watered so that the soil is moist to a depth of four to six inches. It is better to water your lawn thoroughly (so water reaches the root systems) once each week than to water it lightly each day. Watering lightly could actually harm your lawn because only the surface, rather than the roots, may be reached. Watering should be done slowly to avoid runoff. When the soil has high clay content, it will absorb water slowly. Sandy soil absorbs water quickly but won't retain moisture. Adding organic material will help correct these problems. Spread several inches of mulch, such as wood chips, pine straw or leaves. Shaping the mulch and soil around trees or other large plants into basins will help catch and retain water.
9. **Monitor landscape service provider.**
   Review your landscape service and maintenance agreements to place a high priority on water conservation. Check when irrigation systems are operating to insure they are not watering sidewalks and driveways.

Landscape Preservation:

- Preserve the natural state of the landscape by preventing land reform whenever possible.
- Minimize the disturbance to surrounding wildlife.

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Transportation

The transportation choices made by a green business should have the goal of reducing the emission of greenhouse gases into the atmosphere. The decisions made regarding transportation that effect the amount of GHG emissions include the number of and length of trips taken, the mode of travel (walking, cycling, car, carpooling, transit, etc), the fuel efficiency of vehicles, and the type of fuel used. Long-term goals should ultimately consist of changing over to renewable fuels. The following sustainability practices can provide guidance to businesses for incorporating sustainable transportation methods to reduce greenhouse gas emissions.

Reduce Greenhouse Gas Emissions through Sustainable Transportation Choices:

- Incorporate the use of vehicles that run on alternative energies and/or fuel efficient vehicles.
- Encourage and provide transit use, shuttle services, and car sharing whenever possible.
- Encourage and provide the use of bicycles as a transportation method whenever possible.
- Assess current transportation needs to reduce overall vehicle usage.
- Provide opportunities for employees to live close to work to reduce travel needs.
- Incorporate land-use planning that is conducive to sustainable transportation choices.

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Operations & Management

The following sustainability practices have been developed to ensure the incorporation of sustainability into the economical choices made by a green business.

Mission statement:
- Develop and follow a mission statement that incorporates sustainability principles.

Operational plan:
- Operate and manage the facility with a plan that incorporates the environmental goals of the mission statement.

Business plan:
- Develop a business plan that incorporates the environmental goals of the mission statement.

Employment:
- Hire employees that possess sustainability values and beliefs.
- Provide employment opportunities for local members of the community.
- Provide work and living environments that incorporate the mission statement for employees.

Marketing:
- Provide tourists with objective and honest advertising information.
- All advertising is produced in sustainable ways; for example: produce with the use of recycled materials.

Community Development:
- Contribute a portion of revenues to community development efforts.
- Support local goods and services that are produced and supplied in a sustainable manner.

Environmental Conservation:
- Contribute a portion of generated revenue to the conservation and preservation efforts of the natural environment. This can also be used as a marketing advantage.

Cost Analysis:
- Include non-monetary costs of environmental degradation into cost analyses.
- Internalize non-monetary external costs from development and management into cost analysis.

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Conclusion

The sustainability of a business is dependent on the decisions made regarding development and management practices. Overall, it is in the best interest of a business to ensure best management practices are incorporated in all levels of decision making to preserve and protect the natural and human environments upon which its operation relies.

Additional resources are available upon request for the following specific industries:

Restaurants
Landscaping
Automobile Service Garages
Painters and Masonries
General Contractors
Pool Maintenance
Builders
Marine Contractors

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